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0991/11

May/June 2022

1 hour 30 minutes

No additional materials are needed.

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- Dictionaries are **not** allowed.

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [].

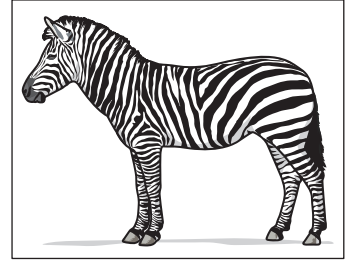
This document has **16** pages. Any blank pages are indicated.

Exercise 1

Read the blog article written by a student about her project on zebras, and then answer the following questions.

Zebras and their stripes

I've always wondered why zebras have stripes, so I decided to do a school project to find out. Before I started it, I knew that zebras are members of the horse family, which consists of seven different kinds of animals including horses and donkeys. And the three species of zebra, which live in Africa, are the only members of the horse family with stripes. Horses and zebras have many things in common, like diet and family living. However, zebras are naturally more aggressive, which means that humans tend to avoid them. And unlike horses, they bark to warn other family members of danger. I already knew these things, but my project was an opportunity to learn more.



The first thing I discovered was that the striped pattern of each zebra is unique, which is amazing if you consider the number of zebras in the world. And they're actually born with brown and white stripes, not black and white, something I hadn't expected to learn. To understand more about the stripes, I decided to read about two scientific experiments.

The first was in 2019, investigating why flies tend not to bite zebras. Zebra hair is short and thin, so in theory flies can easily bite their skin, but don't for some reason. Professor Caro from the University of California, USA, wanted to find out why. Although he had studied zebras extensively in Tanzania, he chose to study a group of zebras in the UK. You might think that he would prefer to study animals in their natural environment, but these zebras were part of a wildlife conservation programme and so were used to humans approaching them. Professor Caro filmed close-up images of how flies behaved around the zebras and whether they landed on the animals or flew past. He then dressed a group of domestic horses in striped jackets and observed the flies' behaviour in the same way, and then repeated this with plain-coloured horses without any jackets.

The results were clear. All three groups – the zebras, the horses in striped jackets, and the plain horses with no jackets – experienced a similar number of flies around them. However, far fewer flies landed on the zebras and on the horses with striped jackets. Instead, the insects approaching these animals just bounced off, whereas the flies around the plain horses managed to land. This proved to Professor Caro that zebras' stripes prevent them from being bitten by flies. Some farmers paint stripes onto cows for the same reason – I've actually seen some in a field near my house. My dad told me that it allows them to feed without interruption. He also told me that painting the cows improves their welfare. I'm not sure how many farmers do this though!

The second experiment I read about was carried out by a former biology technician called Alison Cobb. She'd worked in Africa for many years and had been fascinated by zebras ever since reading stories about African animals as a child. Cobb believed that the function of the stripes was to keep zebras cool. I'd heard this before, but some of her detailed findings, such as the way the black hairs move up and down in the heat, I found remarkable. In her experiment, Cobb measured the temperature of zebras' stripes every 15 minutes. She discovered that the black stripes get much hotter than the white ones – something that had never occurred to me before – and, astonishingly, zebras actually sweat through the ends of their hairs!

After doing my project, I definitely know a lot more about zebras than I did before!

- 1 How many types of zebra are there?
..... [1]
- 2 How is zebra behaviour different from horse behaviour? Give **two** details.
.....
..... [2]
- 3 Where did Professor Caro's experiment take place?
..... [1]
- 4 Why were the zebras in the wildlife conservation programme suitable for Professor Caro's study?
..... [1]
- 5 What happened when the flies in Professor Caro's study tried to land on the animals with stripes?
..... [1]
- 6 What are the benefits of protecting cows from being bitten by flies? Give **two** details.
.....
..... [2]
- 7 What first inspired Alison Cobb's interest in zebras?
..... [1]

[Total: 9]

Exercise 2

Read the article about four unusual museums (A–D). Then answer Question 8(a)–(h).

WHO SAYS MUSEUMS ARE BORING?

Four young people describe an unusual museum they have visited

A Dinosaur Ridge, Colorado Natural Area, USA

My favourite museum is Dinosaur Ridge – one of the best places in the world to see real evidence of dinosaurs. At this ‘outdoor museum’, you can get close to over 300 dinosaur footprints, left in the sand as dinosaurs walked here 100 million years ago – just like being on a Hollywood movie set! The best way to reach the site is to hike or cycle, but the sun can be hot and the route includes a steep climb, so the guided bus tour might be a good alternative for some. Each year, the museum relies on lots of volunteers who assist with everything from answering visitors’ questions to picking up rubbish. I think that would be a fantastic thing to do!

B Cancun Underwater Museum, Mexico

As its name suggests, this museum is in an unusual place – it’s underwater! I love diving, so I can’t think of anything better. The museum was the idea of the local national park director, and consists of over 500 abstract sculptures fixed to the ocean floor. It can be explored by swimming, diving or from a glass-bottom boat. All visitors are taken there by boat from their hotel, so poor weather conditions do occasionally prevent the site from operating. The sculptures were designed by a team of Mexican and British artists and the idea is certainly full of imagination. However, the museum’s main goal is actually the conservation of the underwater environment, which it tries to achieve by showing people through art how we affect our oceans.

C Cup Noodles Museum, Japan

Instant noodles – or ‘cup noodles’ – are my favourite fast food. Just add boiling water and you have an immediate snack in a cup! The museum tells the story of Momofuku Ando, a man who spent his life inventing food that everyone could afford. Hearing his amazing story of investigation and discovery, visitors can’t help being reminded of what it is possible to achieve by thinking differently. The circumstances leading to the invention of his noodles are explained through a short cartoon video. The highlight for me was the opportunity to have my own souvenir noodles produced at the museum factory. You even choose the flavours and draw the picture to be printed on the cup! This activity is popular though, so it might be better to book in advance.

D Computer Games Museum, Germany

This is definitely the museum for computer games fans like me! It contains over 300 interactive devices covering six decades of gaming history, from the 1972 ‘Magnavox Odyssey’ game to more recent PlayStation devices. The museum started in 1997, although it shut soon afterwards, operating online only. It wasn’t until 2011 that it opened in its current building, just five minutes by underground train from central Berlin. As well as being a great place for visitors like me, it also has a slightly more serious side. The museum regularly participates in scientific projects, such as studying how computer games influence the way people interact. If they ever wanted people to take part, I’d be the first to volunteer!

8 For each question write the correct letter A, B, C or D on the line.

Which museum ...

- (a) allows visitors to design their own product to take home? [1]
- (b) aims to protect a particular aspect of the natural world? [1]
- (c) is often involved in research? [1]
- (d) needs people to help out? [1]
- (e) lacked a permanent physical location in its early years? [1]
- (f) has to sometimes close due to circumstances beyond its control? [1]
- (g) has different options for getting there? [1]
- (h) makes people aware of the importance of creative ideas? [1]

[Total: 8]

Exercise 3

Read the article about two brothers who set up a sportswear company called Castore, and then complete the notes.

Brothers in business

Tom and Phil Beahon, two brothers from Liverpool who founded the sportswear brand Castore, originally knew nothing at all about making clothes and they didn't know anyone in the fashion industry. They did have a dream, however – to create their very own luxury sportswear company.

In 2013, they both moved to London, found good office jobs and spent their weekdays working at their desks. However, at weekends they interviewed people in top gyms about their sportswear requirements. Tom and Phil both agree that this played a key role in making Castore such a popular brand. Another factor that helped the brand to take off was that, at that time, although there was high-quality sportswear available for women, no-one was making luxury sportswear for men.

In 2016, the brothers' company Castore was born, taking its name from Castor and Pollux, who were famous twin brothers in ancient Greek myths. The business started to grow, helped by significant investment from famous business people. Today, the company has a multi-million-pound income and the brothers have an ambition to expand overseas, but they haven't always known such a high level of success. When they were younger, they both played sport: Tom was a professional football player for a while and Phil played cricket semi-professionally. However, each of them knew they would never get to the top of their sport, so they decided to give up their sports careers. It was a hard decision for both of them, but not one that they regret.

Usually, it's the big sportswear brands that have to ask famous sportspeople to wear their clothes. But in the case of Castore, it's the other way round – a number of well-known sports professionals are keen to promote the brand. Tom and Phil aren't satisfied with supplying individuals, however, and are aiming to supply professional teams with official sports kits. They're also looking to launch new clothes collections for specific sports. Phil emphasises that Castore's success is due to the unique products it develops. One of these is the Fusion jacket. This high-tech item is silver in the daytime to absorb sunlight; it becomes bright green at night to make the wearer visible enough to continue training after dark.

Like many companies, they operate online. When it comes to real shops, they made the business decision early on to sell their clothes only in the best stores. Tom and Phil believe that this decision has really paid off. They've also tried other methods of selling, like opening a series of temporary shops for a few weeks each, to see if these might be popular or not. In fact, they're intending to open more 'pop-up' stores overseas in the coming months. The Head Office is in Liverpool, where they grew up, and the brothers want to increase the number of staff they employ. 'It's important for us to do this,' says Tom.

So far, Castore has been a real success story. Who knows where they'll go in the future?

You are going to give a talk about the sportswear company Castore to your class at school. Prepare some notes to use as the basis for your talk.

Make short notes under each heading.

9 Reasons for the success of the brothers' sportswear company:

-
-
-
- [4]

10 The brothers' future plans for the sportswear company:

-
-
- [3]

[Total: 7]

Exercise 4

- 11 Read the article about the history of the potato.

Write a summary about why the potato has become a popular food.

Your summary should be about 80 words long (and no more than 90 words long). You should use your own words as far as possible.

You will receive up to 6 marks for the content of your summary, and up to 6 marks for the style and accuracy of your language.

How the potato travelled the world

Wherever you travel, people consider the potato to be part of their local food. Potato can be cooked in many different ways and so is now found in a wide variety of dishes from Indian aloo gobi to Italian gnocchi. Until the middle of the 16th century though, this easy-to-grow vegetable was only found in South America. How then, in just a few centuries, did it become such a globally familiar food?

In 17th and 18th century Europe, many people didn't own any land and instead had to pay rent for the land they farmed. They often chose to grow potatoes, which had been introduced from South America previously, as these plants could produce a large amount of food in a small space. Potatoes also contain some important vitamins needed for human health, so it's no surprise that they became highly valued by farmers trying to feed their families.

There were many aspects to the potato's appeal. Although potato plants initially struggled to survive in the cold European winters, farmers eventually produced varieties of potato that were able to adapt to the local climate, and the potato became the main food crop in Europe. By the 19th century, potatoes were being grown across the world – from Asia to Africa, China to North America – in part due to the fact that they were cheap. Although potatoes could be stored well, the limited number of varieties meant that potato plants were sometimes destroyed by disease before they were able to produce a crop. So, in the early 20th century, scientists started trying to find a solution. Eventually they were successful and managed to produce a range of varieties that could resist disease.

Today, the world's top potato producers are China, India, Russia and Ukraine. The potato is now a genuinely global food crop.

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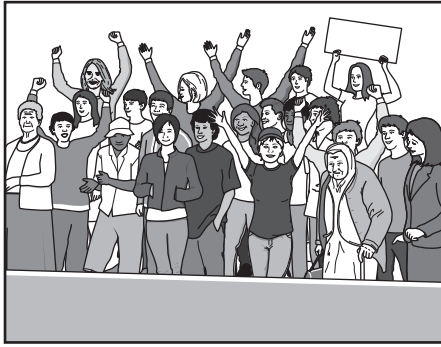
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[Total: 12]

Exercise 5



12 Your town has been chosen as the location for a large international event.

Write an email to a friend telling them about this.

In your email, you should:

- explain why your town was chosen for the event
- describe what will happen at the event
- suggest how you could both get tickets to watch the event.

The pictures above may give you some ideas, and you can also use some ideas of your own.

Your email should be between 100 and 150 words long.

You will receive up to 6 marks for the content of your email, and up to 6 marks for the language used.

Exercise 6

- 13** In class, you have been discussing whether the school day should start and finish later, because many teenagers find it hard to get up early in the mornings.

Here are some comments from your classmates:

I don't want to have less free time after school.

Our parents have to go to work early, so we should too.

I can't concentrate early in the morning.

I never go to bed before midnight, so I hate early mornings!

Write an article for the school magazine, giving your views.

The comments above may give you some ideas, and you can also use some ideas of your own.

Your article should be between 100 and 150 words long.

You will receive up to 6 marks for the content of your article, and up to 6 marks for the language used.

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